

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

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1. (currently amended) A cleaning device comprising:

a. an elongated flexible base member formed in a thermally set helix-like elongated coiled configuration infinitely stretchable and bendable from a first contracted coiled position to a second extended coiled position therein forming
10 an infinitely varying diameter opening therethrough and forming an infinitely varying helical angle and formed from a thermoplastic material having fibers protruding from at least one side of a portion thereof and said base member having a characteristic permitting infinite thermal memory reset from a an initial first configuration to a second configuration [[.]] ; and

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b. said base member in said helix-like coiled configuration having a characteristic of memory spring return from said second extended coiled position to said first contracted coiled position.

20 steps of:

a. selecting an elongated flexible base member formed from a thermoplastic material having a plurality of memory states and having a plurality of fibers integrally connected to and protruding from at least one side of a portion thereof;

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b. bending said base member having a first memory state from a first position to a second position;

c. applying heat to said base member to reset said first memory state to a second memory state.

30 3. (canceled)

4. (currently amended) A cleaning device as described in claim 1 wherein:

a. said base member ~~has~~ having an elongated helix-like coiled configuration ~~having~~ has a constant helical angle.

5 5. (previously amended) A cleaning device as described in claim 1 wherein:

a. said base member has an elongated flexible helix-like configuration having a helical angle which may be initially selectively varied along its length.

6. (currently amended) A cleaning device as described in claim 1 wherein:

10 a. said base member has an elongated helix-like coiled configuration having a selected helical angle which forms a device wherein said individual helix-like ~~with~~ coils ~~which~~ are close fitting one to the other.

7. (currently amended) A cleaning device as described in claim 3 wherein:

15 a. said base member has an elongated helix-like coiled configuration having a selected helical angle which forms a device with coils which are spaced one from the other a selected distance.

8. (previously amended) A cleaning device as described in claim 1 wherein:

20 a. said fibers protrude from said base at varying selected lengths from said base.

9. (canceled)

25 10. (previously amended) A cleaning device as described in claim 1 wherein:

a. said base member has an elongated flexible helix-like configuration initially having portions varying with different selected helical angles.

11. (canceled)

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12. (withdrawn) A method for forming a cleaning device which comprises the steps of:

a. selecting an elongated base member formed from a thermoplastic material and having a plurality of fibers integrally connected thereto and

5 protruding therefrom;

b. attaching a first portion of said base member to a rotatable mandrel member at a starting point on said mandrel;

c. simultaneously rotating said mandrel, and progressively feeding said base member onto said mandrel at an ever increasing distance from said starting
10 point on said mandrel;

d. applying sufficient heat to said base member to soften said thermoplastic material so that it will conform to the outer surface of said mandrel;

e. continuing said rotating and feeding until a selected end point away
15 from said starting point on said mandrel is reached;

f. applying a cooling medium to said base member until said base member hardens and remains conformed to the outer surface of said mandrel; and

g. removing said base member from said mandrel.

20 13. (withdrawn) A method for forming a cleaning device wherein the steps described in claim 12 include:

a. selecting a base member wherein the fibers protrude from one side only of said elongated base member; and

b. feeding said base member onto said mandrel as described in claim 13
25 so that said base member is fed onto the outer surface of said mandrel so that said fibers protrude radially outwardly from said mandrel.

14. (withdrawn) A method for forming a cleaning device wherein the steps of claim 12 include:

30 a. selecting a base member wherein the fibers protrude from one side only of said elongated base member;

- b. selecting a mandrel having a tubular configuration; and
- c. feeding said base member into the tubular interior of said mandrel so that said fibers protrude radially inwardly from said mandrel circumference.

- 5 15. (withdrawn) A method for forming a cleaning device wherein the steps of claim 12 include:
- a. applying said sufficient heat to said base member prior to said feeding step.
- 10 16. (withdrawn) A method for forming a cleaning device using the steps of claim 13 and further comprising the steps of:
- a. severing said base member at a point at a selected distance from the last portion to be fed upon said mandrel thus providing a leader member.
- 15 17. (withdrawn) A method for forming a cleaning device using the steps of claim 13 and further comprising the steps of:
- a. providing a guide for said base member directing said base member toward said mandrel at a selected angle.
- 20 18. (withdrawn) A method for forming a cleaning device using the steps of claim 12 and further comprising the steps of:
- a. providing a carriage means for carrying a guide for said base member which is movable at a selected velocity parallel to said mandrel during said feeding step.
- 25 19. (withdrawn) A method for forming a cleaning device using the steps of claim 18 and further comprising the steps of:
- a. selecting a speed controller for varying the velocity of said carriage during said feeding step.

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20. (withdrawn) A method for forming a cleaning device using the steps of claim 18 and further comprising the steps of:

a. selecting an angle controller for varying the angle of said guide member for varying the angle said base member is directed toward said mandrel.

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21. (withdrawn) A method for forming a cleaning device using the steps of claim 18 and further comprising the step of varying the angle of said guide member during said feeding step.

10 22. (withdrawn) A method for forming a cleaning device using the steps of claim 16 and further comprising the step of:

a. severing the fiber members from said leader member.

15 23 (withdrawn) A method for forming a cleaning device using the steps of claim 12 and further comprising the steps of:

a. providing a tail portion before attaching said base member to said rotatable mandrel member; and

b. severing the fiber members from said tail member.

20 24. (withdrawn) A method for forming a cleaning device using the steps of claim 12 wherein:

a. the base member selected has one or more types of fibers integrally connected thereto in patterns of uniformly mixed distribution or patterns of segregated patterns of different fibers.

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25. (currently amended) A cleaning device ~~as described in claim 1~~ comprising:

a. an elongated flexible base member formed in a helix-like configuration forming an opening therethrough and formed from a thermoplastic material having fibers protruding from at least one side of a portion thereof and said
30 base member having a characteristic permitting memory reset from a first configuration to a second configuration; and

a. b a first portion of said elongated flexible base member forming a first end is formed without said helix-like configuration and without said fibers thereby creating a first leader.

5 26. (currently amended) A cleaning device ~~as described in claim 25~~ comprising:

a. an elongated flexible base member formed in a helix-like configuration forming an opening therethrough and formed from a thermoplastic material having fibers protruding from at least one side of a portion thereof and said base member having a characteristic permitting memory reset from a first
10 configuration to a second configuration;

b. a first portion of said elongated flexible base member forming a first end is formed without said helix-like configuration and without said fibers thereby creating a first leader; and

c. [[a.]] a second portion of said elongated flexible base member forming
15 a second end is formed without said helix-like configuration and without said fibers creating a second leader.

27. (currently amended) A cleaning device as described in claim 1 comprising:

a. a non-stretchable, flexible and relatively non-compressible plastic core
20 member inserted through a portion of said opening formed by said elongated flexible base member formed in a thermally set helix-like elongated coil configuration and connected to said flexible base member formed in a thermally set helix-like elongated coil configuration at one or more points along the length of said ~~flexible base plastic core~~ member; and [[.]]

25 b. said thermally set helix-like elongated coiled flexible base member having the freedom to stretch and bend and slide along said plastic core member from all of said plastic core member connection points and between all of said plastic core member connection points.

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28. (currently amended) A cleaning device ~~as described in claim 27~~ comprising:

a. an elongated flexible base member formed in a helix-like configuration forming an opening therethrough and formed from a thermoplastic material having fibers protruding from at least one side of a portion thereof and said
5 base member having a characteristic permitting memory reset from a first configuration to a second configuration ;

b. a non-stretchable and relatively non-compressible plastic core member inserted through a portion of said opening formed by said elongated flexible base member; and

10 c. a. said flexible base member is connected to said core member at the end portions only of said flexible base member [(),] .

29. (currently amended) A cleaning device as described in claim 1 27 having no metal parts comprising:

15 a. a non-stretchable and relatively non-compressible plastic core member having a first portion forming a handle and a second portion inserted through said opening formed by said elongated flexible base member formed in a thermally set helix-like elongated coil configuration;

a b. said flexible base member having edges and a base is connected as
20 by bonding substantially continuously at said base to said plastic core member throughout said portion which is formed in a helix-like configuration[().] ; and

c. said edges of said elongated flexible base member coils are coiled about said plastic core member in close or touching contact with one another so as to stiffen said plastic core member portion in contact with said coiled base
25 member.

30. (original claim) A cleaning device as described in claim 27 comprising:

a. a first core extension extending beyond a first end of said flexible base member forming a first handle.

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31. (original claim) A cleaning device as described in claim 30 comprising:

a. a second core extension extending beyond a second end of said flexible base member forming a second handle.

5 32. (original claim) A cleaning device as described in claim 27 comprising:

a. said core member is shaped and dimensioned to permit said device to be inserted through elongated enclosures without buckling.

33. (original claim) A cleaning device as described in claim 27 comprising:

10 a. said core member is shaped and dimensioned to permit said device to be pulled through elongated tortuous enclosures.

34. (original claim) A cleaning device as described in claim 32 comprising:

a. said fibers are of sufficient density and length to permit said cleaning
15 device to be forced through a structure to be inserted through a tubular structure by fluid pressure.

35. (Original claim) A cleaning device as described in claim 27 comprising:

a. said fibers protruding from said base member have a relatively short
20 length to enable said device to be inserted through tubular members having a relatively small cross section.

36. (previously amended) A cleaning device as described in claim 27 comprising:

25 a. said fibers protruding from said base member have a relatively long length to enable said device to be inserted through tubular members having a relatively large cross section.

37. (previously amended) A cleaning device as described in claim 27

30 comprising:

a. said fibers protruding from said base member are relatively rigid to enable forceful cleaning of tubular and non tubular work pieces.

38. (previously amended) A cleaning device as described in claim 27

5 comprising:

a. said fibers protruding from said base member are relatively flexible to enable said device to clean irregularly dimensioned tubular and non-tubular members more effectively or to avoid scratching certain surfaces. .

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